

CLAIMS

What is claimed is:

1. An actuator assembly comprising:

an actuator drivingly connected to an output member by a transmission path, and said actuator moves said output member about a pivot point in a first direction from a rest position to an actuated position and moves said output member in a second direction from said actuated position to said rest position; and

an energy storing member which provides a force, movement of said output member by said actuator in said first direction being assisted by said energy storing member and movement of said output member by said actuator in said second direction stores energy in said energy storing member, and wherein said energy storing member is positioned relative to said pivot point such that said force acts substantially through said pivot point when said output member is in said rest position.

2. The latch assembly as recited in claim 1 wherein since said force acts substantially through said pivot point when said output member is in said rest position a resultant torque is not generated on said output member.

3. The actuator assembly according to claim 1 wherein said energy storing member is positioned such that said force acts through said pivot point of said output member.

4. The actuator assembly according to claim 1 wherein said energy storing member acts on said output member.
5. The actuator assembly according to claim 4 wherein said energy storage member acts on an abutment of said output member.
6. The actuator assembly according to claim 5 wherein said abutment moves about said pivot point as said output member moves.
7. The actuator assembly according to claim 5 wherein said abutment is a crank pin.
8. The actuator assembly according to claim 1 wherein said energy storing member provides an assistance force as said output member moves in said first direction, said assistance force progressively increasing to a maximum and then decreasing from said maximum.
9. The actuator assembly according to claim 1 wherein said energy storing member is a helical spring.
10. The actuator assembly according to claim 9 wherein said helical spring includes a circular portion including at least one coil and at least one arm which acts on said output member.

11. The actuator assembly according to claim 10 wherein said helical spring has a second arm which acts on a fixed abutment.

12. An actuator assembly comprising:

an actuator drivingly connected to an output member by a transmission path, and said actuator moves said output member about a pivot point in a first direction from a rest position to an actuated position and moves said output member in a second direction from said actuated position to said rest position; and

an energy storing member which provides a force, movement of said output member by said actuator in said first direction being assisted by said energy storing member over a substantial portion of said movement to said actuated position, and movement of said output member by said actuator in said second direction stores energy in said energy storing member over a substantial portion of said movement to said rest position, and wherein said energy storing member is positioned relative to said pivot point, and said force acts to drive said output member in said second direction when said output member is in said rest position.

13. A latch assembly comprising:

an actuator assembly including an actuator drivingly connected to an output member by a transmission path, and said actuator moves said output member about a pivot point in a first direction from a rest position to an actuated position and moves said output member in a second direction from said actuated position to said rest position and an energy storing member which provides a force, and movement of said output member by said actuator in said first direction being assisted by said energy storing member and movement of said output member by said actuator in said second direction stores energy in said energy storing member, wherein said energy storing member is positioned relative to said pivot point such that said force acts substantially through said pivot point when said output member is in said rest position; and

a component, and said actuator is operable to move said component of said latch assembly from a first position to a second position to change a state of said latch assembly.

14. The latch assembly according to claim 13 wherein movement of said component from said first position to said second position changes said state of said latch assembly from a fully closed state to a fully open state.

15. The latch assembly according to claim 14 further including a pivotally mounted latch claw and a pawl self-engaging said claw in said fully closed state, wherein movement of said pawl from said first position to said second position moves said pawl out of engagement with said claw and changes said state of said latch assembly to said fully open state.

16. The latch assembly according to claim 13 wherein said movement of said component from said first position to said second position changes said state of said latch assembly from an initial engagement state to a fully closed state to power close said latch assembly.

17. The latch assembly according to claim 16 wherein said initial engagement state is a first safety position of said latch assembly.

18. The latch assembly according to claim 16 further including a pivotally mounted latch claw having a mouth operatively co-acting with a striker as an associated door nears an initial engagement state and a drive pawl, wherein movement of said drive pawl from said first position to said second position causes said drive pawl to move said claw from said initial engagement state to said fully closed state to power close said latch assembly.

19. The latch assembly according to claim 13 wherein said actuator is substantially immediately driven in said second direction after said actuator has driven said component in said first direction from said first position to said second position.